OhioEPA
Ohio Environmental Protection Agency
Division of Surface Water

Biosolids Agronomic Rate Calculation Worksheet

General Information

Ohio EPA #	59-00104	
Field ID #	MOQ-09-05	
Generator Name	Emerald BioEnergy	

Biosolids Data and Beneficial Use Methods

Ammonia Nitrogen	60200.00	mg/kg
Total Kjeldahl Nitrogen	100000.00	mg/kg
Total Phosphorus	37400.00	mg/kg
Organic Nitrogen	79.60	lbs/ton
Available Nitrogen	144.28	lbs/ton
Phosphate (P_2O_5)	85.65	lbs/ton
Will Immediate Incorporation / Injection be performed?	yes	

Beneficial Use Site Information

Soil Phosphorus	6.50	ppm	Bray-Kurtz P1		
	6.50	ppm			
Please note that the agronomic rates and phosphorus index have been calculated within the *Calculated Agronomic Rates* section; however, based upon the above provided *Soil Phosphorus* result, you must utilize the most limiting factor or the *Phosphorus Index*:	The nitrogen agronomic rate, a phosphate beneficial use rate of <250 lbs/acre, a phosphate beneficial use rate of 256-500 lbs/acre if injected/incorporated within 24 hours of beneficial use or if there is >50% ground cover, or the Phosphorus Index.				
County	Morrow				
Soil Type	Pewamo silty clay loam				
Hydrologic Soil Group	D				

Year 1	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)	Corn (Grain)				
Expected Crop Yield(s)(bu/acre or tons/acre)	185				
Year 2	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)	Soybean				
Expected Crop Yield(s)(bu/acre or tons/acre)	60				
Year 3	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)					
Expected Crop Yield(s)(bu/acre or tons/acre)					
Year 4	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)					
Expected Crop Yield(s)(bu/acre or tons/acre)					
Year 5	Crop 1	Crop 2	Crop 3	Crop 4	Crop 5
Crop Type(s)					
Expected Crop Yield(s)(bu/acre or tons/acre)					

Crop Nitrogen Requirements (Year 1)	222	lbs/acre
Existing Available Nitrogen		lbs/acre
Non-Biosolids Nitrogen Application		lbs/acre
Phosphate (P_2O_5) Fertilizer Application		lbs/acre
Non-Biosolids Organic Phosphate (P_2O_5) Application		lbs/acre
Biosolids Phosphate (P_2O_5) Beneficial Use	131.78	lbs/acre
Total Organic Phosphate (P_2O_5) Fertilizer Application	131.78	lbs/acre

Phosphorus Index

		Subvalue
Soil Loss	5 tons/acre/year	5
Connectivity to "waters of the State"	Concentrated flow does not leave the beneficial use site and is not adjacent to an intermittent or perenial stream.	0
Runoff Class - Slope Range	<1%	6
Soil Phosphorus		0.46
Application - Phosphate (P_2O_5) Fertilizer		0
Method - Phosphate (P_2O_5) Fertilizer	None applied.	0
Application - Organic Phosphate (P_2O_5) Fertilizer		7.91
Method - Organic Phosphate (P_2O_5) Fertilizer	Immediate incorporation or applied on ≥80% cover.	0.5
Does runoff flow through a filter strip designed per USDA Ohio-NRCS Field Office Technical Guide Standard 393?	No	0
Total Phosphorus Index		**19.86**

Calculated Agronomic Rates

Nitrogen Agronomic Rate	1.54	dry tons/acre
i. Calculated Agronomic Rate	1.54	dry tons/acre
Single Year Phosphate Agronomic Rate	0.86	dry tons/acre
Multi-Year Phosphate Agronomic Rate	1.42	dry tons/acre
Phosphorus Index	Medium potential for phosphorus runoff. Use the Nitrogen Agronomic Rate.	

Beneficial Use Site Records

Quantity of Biosolids Beneficially Used	46.58	dry tons			
Phosphate (P_2O_5) Beneficially Used Per Acre	346.90	lbs/acre			
Acreage	23				
Date Biosolids Delivered to Beneficial Use Site	8/24/2017				
Dates of Beneficial Use	8/24/2017	to	8/24/2017		
Total Days Biosolids Stored at Beneficial Use Site	0.00	Days			
Date Signage Posted at Beneficial Use Site	8/17/2017		☐ Yes	Is a permanent sign posted at the beneficial use site?	
Date Signage Removed from Beneficial Use Site	9/1/2017		☑ No		